

REMARKS/ARGUMENTS

Favorable reconsideration of this application as presently amended and in light of the following discussion is respectfully requested.

Claims 1 and 3-25 are pending in the present application. Claim 2 is canceled, Claims 1, 3-7, 9-12, 15, 17, 20, and 21 are amended, and Claims 22-25 are added by the present amendment.

In the outstanding Office Action, Claims 15 and 20 were rejected under 35 U.S.C. § 112, second paragraph; Claims 1 and 2 were rejected under 35 U.S.C. § 102(b) as anticipated by Fumiyoshi et al. (Japanese Patent Application 04-046024, hereinafter "Fumiyoshi"); Claims 3-15 and 18-21 were rejected under 35 U.S.C. § 103(a) as unpatentable over Fumiyoshi in view of Sato et al. (U.S. Patent No. 5,228,894, herein "Sato"); Claim 16 was rejected under 35 U.S.C. § 103(a) as unpatentable over Fumiyoshi in view of Sato and Takeshi et al. (Japanese Publication No. 08-133767, herein "Takeshi"); Claim 17 was rejected under 35 U.S.C. § 103(a) as unpatentable over Fumiyoshi, Sato, and Japanese Patent Application 63-310735 (herein JP '735); Claim 4 was objected to; the specification was objected to; and the drawings were objected to.

Applicants thank the Examiner for the courtesy of an interview extended to Applicants' representative on October 22, 2003. During the interview differences between the claims and the applied art were discussed. Further, claim amendments clarifying the claims over the applied art were discussed. The Examiner indicated that favorable consideration would be given when a response is filed. The present response sets forth those discussed claim amendments. Arguments presented during the interview are reiterated below.

Regarding the objection to the specification, the specification is amended in light of the comments noted in the outstanding Office Action. In addition, the specification is amended, as discussed during the interview, to recite the term “forming” for surfaces of first and second molds. Further, the specification is amended at page 17, paragraph 39, as also discussed during the interview, to correct a typographical error that left out the last lines of that paragraph. No new matter is believed to be added. Accordingly, it is respectfully requested that this objection be withdrawn.

In response to the objection to the drawings, Figures 1(A), 1(B), and 1(C) are modified in light of the comments noted in the outstanding Office Action. No new matter is believed to be added. Accordingly, it is respectfully requested that this objection be withdrawn.

Regarding the objection to Claim 4, Claim 4 is amended as suggested in the outstanding Office Action. No new matter is believed to be added. Accordingly, it is respectfully requested that this objection be withdrawn.

Regarding the rejection of Claims 15 and 20 under 35 U.S.C. § 112, second paragraph, Claims 15 and 20 are amended to better define that “a secondary pressure which is smaller than the initial pressure” is applied after the initial pressure. The claim amendments find support in the originally filed specification, for example, at page 11, paragraph 26. No new matter is believed to be added. Accordingly, it is respectfully requested that this rejection be withdrawn.

Claims 1 and 2 were rejected under 35 U.S.C. § 102(b) as anticipated by Fumiyoshi. That rejection is respectfully traversed.

Independent Claim 1 is amended to more clearly recite that an application of a pressure starts “when the first mold and the second mold are at temperatures above a glass

transition temperature.” The claim amendments find support in the originally filed specification, for example, at page 3, paragraphs 8 and 9, and in Figures 3, 8, 9, and 10. No new matter is believed to be added.

Amended independent Claim 1 is directed to a method for manufacturing a glass optical element having at least one concave surface. The method includes softening a glass molding material by heating, molding the softened material with a first mold and a second mold by applying a pressure, and cooling the first mold and the second mold. The pressure starts when the first mold and the second mold are at temperatures above a glass transition temperature of the glass molding material.

The method of Claim 1 advantageously achieves “molding of lenses that are concave on one or both surfaces with high surface precision.”¹

Fumiyoshi shows in Figures 1(a) - 1(d) die elements 12 and 12' having a concave face and a convex face, respectively, and pressing the two dies 12 and 12' to form a lens 30 from a melted material 4. However, as discussed during the interview, Fumiyoshi does not teach or suggest applying a pressure when a first mold and a second mold are at temperatures above a glass transition temperature of the glass material, as required in independent Claim 1.

To the contrary, Fumiyoshi shows in Examples 1-5 and 7-8 of Table 1 that the temperatures of the dies 12 and 12' are *equal to or lower* than a glass transition temperature (430°C) of a dense flint glass used by Fumiyoshi, as disclosed at page 4, column 8, line 50, to page 6, column 9, line 2 (a partial English translation of Fumiyoshi is provided by the Applicants in the attached Appendix).

Further, Fumiyoshi discloses that the die 12 in Example 6 of Table 1 has a concave surface and a temperature above the glass transition temperature and the second die 12' has a

¹ Specification, paragraph 4.

convex surface and a temperature below the glass transition temperature. In addition, Fumiyoshi maintains the die 12 corresponding to the second mold of Claim 1 at a higher temperature than the die 12' corresponding to the first mold of Claim 1. However, the method of Claim 1 teaches that both temperatures of the molds are above the glass transition temperature of the glass and a temperature of the mold having a concave forming surface (convex surface) has a temperature higher than the mold having a convex forming surface, contrary to Fumiyoshi.

Accordingly, it is respectfully submitted that amended independent Claim 1 and each of the claims depending therefrom patentably distinguish over Fumiyoshi.

Claims 3-15 and 18-21 were rejected under 35 U.S.C. § 103(a) as unpatentable over Fumiyoshi in view of Sato. That rejection is respectfully traversed.

The outstanding Office Action relies on Sato for teaching a molding process and the first mold is an upper mold and the second mold is a lower mold. However, Sato does not overcome the deficiencies of Fumiyoshi discussed above. In addition, Claims 3-15 and 18-21 depend on independent Claim 1, which is believed to be allowable as noted above. Accordingly, it is respectfully submitted that dependent Claims 3-15 and 18-21 are also allowable.

Claim 16 was rejected under 35 U.S.C. § 103(a) as unpatentable over Fumiyoshi, Sato, and Takeshi. That rejection is respectfully traversed.

The outstanding Office Action relies on Takeshi for teaching various thicknesses of a glass optical element. However, Takeshi does not overcome the deficiencies of Fumiyoshi and Sato discussed above. In addition, Claim 16 depends on independent Claim 1, which is believed to be allowable as noted above. Accordingly, it is respectfully submitted that dependent Claim 16 is also allowable.

Claim 17 was rejected under 35 U.S.C. § 103(a) as unpatentable over Fumiyoshi in view of Sato and JP '735. That rejection is respectfully traversed.

The outstanding Office Action relies on JP '735 for teaching a second concave molding surface having a radius of curvature greater than that of a first concave surface. However, JP '735 does not overcome the deficiencies of Fumiyoshi and Sato discussed above. In addition, Claim 17 depends on independent Claim 1, which is believed to be allowable as noted above. Accordingly, it is respectfully submitted that dependent Claim 17 is also allowable.

New dependent Claims 22-25 are added to set forth the invention in a varying scope and Applicants submit the new claims are supported by the originally filed specification. In particular, Claim 22 finds support in the specification, for example, at page 7, paragraph 16 and Figures 8 and 9, Claim 23 finds support in the specification, for example, in Examples 1 and 2 and Figures 1(B), 5, and 6, Claim 24 finds support in the specification, for example, at page 11, paragraph 26, and Claim 25 finds support in the specification, for example, at page 12, paragraph 27. No new matter is believed to be added. Accordingly, it is respectfully submitted that new Claims 22-25, dependent on independent Claim 1, are allowable for similar reasons as discussed above.

Consequently, in light of the above discussion and in view of the present amendment, the present application is believed to be in condition for allowance and an early and favorable action to that effect is respectfully requested.

Respectfully submitted,

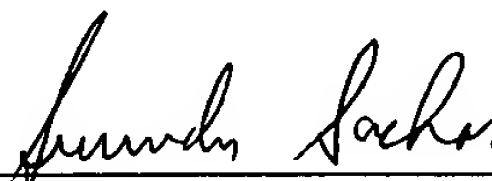
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